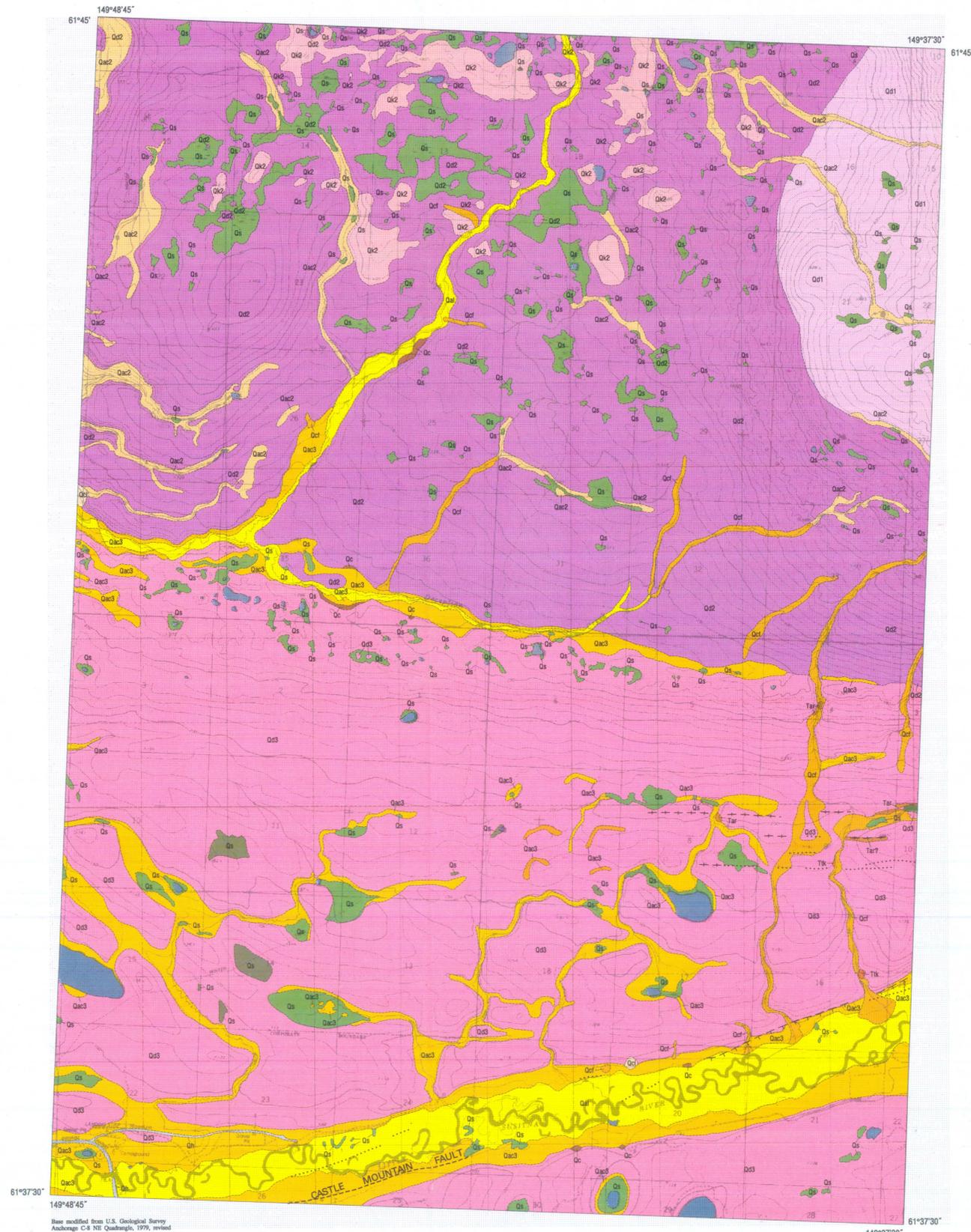


DESCRIPTION OF MAP UNITS<sup>1</sup>



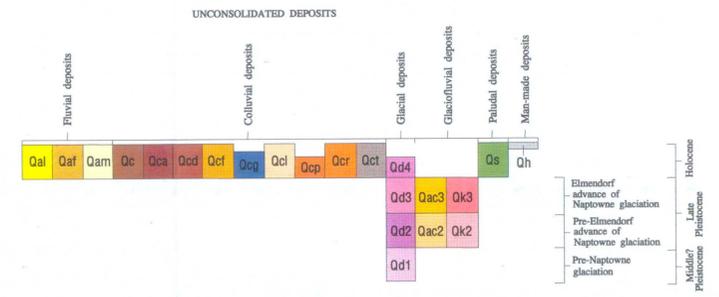
UNCONSOLIDATED DEPOSITS

- Fluvial Deposits**
  - Qal** FLOODPLAIN ALLUVIUM—Elongate deposits of pebble-cobble gravel and sand with few to numerous boulders beneath modern floodplains and associated low terraces; well sorted and medium to thick bedded, locally crossbedded; surface smooth, except for local low scarp
  - Qaf** ALLUVIAL DEPOSITS—Fan-shaped, heterogeneous mixtures of pebble-cobble gravel with some sand and silt and few to numerous, subangular to rounded boulders, especially in proximal areas, which may include debris-flow deposits; thin to thick bedded; surface smooth, except for numerous shallow, interconnected channels
  - Qam** ALLUVIUM OF SMALL MEANDERING STREAMS—Complex mixtures of sand, silt, and organic material accumulated beneath floodplains of small meandering streams; moderately well sorted; laminated to medium bedded, locally crossbedded; surface smooth, except for local low scarp
  - Qc** UNDIFFERENTIATED COLLUVIUM—Irregular, heterogeneous blankets, aprons, and fans of angular to subangular rock fragments, gravel, sand, and silt deposited at the mouths of bedrock channels by residual weathering and complex mass-movement processes, including rilling, sliding, flowing, and debris flow; locally modified by drift of ancient glacial till; locally washed by meltwater and slope-proximal mud to thick bedded; surface smooth, lobed, or terraced and generally reflects configuration of underlying bedrock surface
  - Qca** SNOW-AVALANCHE DEPOSIT—Tongue-, fan-, and cone-shaped heterogeneous mixtures of angular rock fragments, gravel, sand, and silt deposited at the mouths of bedrock channels and gullies and on lower steep slopes by snow avalanches; surface typically covered by numerous boulders
  - Qcd** DEBRIS-FLOW DEPOSITS—Tongue-shaped, heterogeneous mixtures of sand and silt with some gravel and few to numerous angular rock fragments and organic debris deposited at the mouths of gullies and on lower slopes by debris flows; surface lobed, discontinuously channelled, and covered by numerous subangular to subrounded boulders
  - Qcf** UNDIFFERENTIATED COLLUVIUM AND ALLUVIUM—Fan- and tongue-shaped and elongate heterogeneous mixtures of subangular rock fragments and pebble-cobble gravel with some sand and silt deposited in upper stream courses primarily by debris flows and local intense summer stream flows; surface smooth, except for local low scarp
  - Qcg** ROCK-GLACIER DEPOSIT—Tongue- and bench-shaped heterogeneous mixtures of angular to subangular blocks of local bedrock and ice with trace to some gravel, sand, and silt that accumulates on floors and lower walls of cirques by flow of rock fragments derived from ablation of former glaciers (ice cores) or from deposition and cementation of precipitation-derived rock (ice cemented); permafrost frozen where active; surface forward, ridged concentricity, and pitted; covered with angular to subangular blocks
  - Qcl** LANDSLIDE DEPOSIT—Oval to tongue-shaped heterogeneous mixtures of fractured bedrock pebble-cobble gravel with trace to some sand and silt deposited by mass-movement processes and sliding due to instability of bedded bedrock and unconsolidated surficial deposits; surface slightly irregular and broken by acute ground cracks and low ridges
  - Qcm** FROTALUS-RAMPART DEPOSIT—Arcuate, steep-sided ridge of angular rock fragments of local bedrock with trace to some sand and silt deposited by bounding, rilling, and sliding of individual large clasts across surface of perennial snowbank
  - Qcn** ROCK-HILL DEPOSIT—Irregular accumulation of large angular blocks of local bedrock derived by collapse of higher country
  - Qco** TALUS—Cone- and apron-shaped heterogeneous mixtures of angular rock fragments with trace to some gravel, sand, and silt deposited on steep bedrock slopes and at the mouths of steep bedrock channels by snow avalanches; free fall, tumbling, rilling, and sliding; surface steep, slightly irregular, and covered with numerous angular rock fragments, especially in distal zones
- Glacial Deposits**
  - Qd1** UNMODIFIED DRIFT OF POST-NAPTOWNE GLACIATION—Heterogeneous blanket of pebble-cobble gravel with some sand and trace to some silt and few to numerous subangular to subrounded boulders deposited directly from glacial ice generally massive bedded; surface slightly irregular to irregular (knob and kettle topography)
  - Qd2** UNMODIFIED DRIFT OF ELMENDORF ADVANCE (NAPTOWNE GLACIATION)—Heterogeneous blanket of pebble-cobble gravel with some sand and trace to some silt and few to numerous subangular to subrounded boulders deposited directly from glacial ice generally massive bedded; surface slightly irregular to irregular (knob and kettle topography)
  - Qd3** UNMODIFIED DRIFT OF PRE-ELMENDORF ADVANCES (NAPTOWNE GLACIATION)—Heterogeneous blanket of pebble-cobble gravel with some sand and trace to some silt and few to numerous subangular to subrounded boulders deposited directly from glacial ice; generally massive bedded; surface slightly irregular to irregular (knob and kettle topography)
  - Qd4** MODIFIED DRIFT OF PRE-NAPTOWNE GLACIATION—Heterogeneous blanket of pebble-cobble gravel with some sand and trace to some silt and few to numerous subangular to subrounded boulders deposited directly from glacial ice and slightly reworked by mass-movement processes; generally massive bedded, surface slightly irregular
- Glaciofluvial Deposits**
  - Qd5** ABANDONED-CHANNEL DEPOSITS OF ELMENDORF ADVANCE (NAPTOWNE GLACIATION)—Elongate variable deposits in channels of former meltwater streams and subsequent underflow streams; composition ranges from slightly washed drift and colluvial siltstone in upland areas to well-sorted, clean pebble-cobble gravel and gravels medium to coarse sand with rare to numerous boulders deposited in lowland; may include siltstone and in lowland, medium to thick bedded, locally crossbedded; surface smooth, except for low local scarp, to deeply pitted where large masses of stagnant glacial ice were buried
  - Qd6** ABANDONED-CHANNEL DEPOSITS OF PRE-ELMENDORF ADVANCES (NAPTOWNE GLACIATION)—Elongate variable deposits in channels of former meltwater streams and subsequent underflow streams; composition ranges from slightly washed drift and colluvial siltstone in upland areas to well-sorted, clean pebble-cobble gravel and gravels medium to coarse sand with rare to numerous boulders deposited in lowland; may include siltstone and in lowland north of Deception Creek may include ice-marginal deposits including fine-grained lacustrine deposits; thin to thick bedded, locally crossbedded; surface smooth, except for low local scarp
  - Qd7** KAME-SKEWER-GEWASSE FILL DEPOSITS OF ELMENDORF ADVANCE (NAPTOWNE GLACIATION)—Complex mixtures of sandy alluvium and heterogeneous till deposited by debris-charged meltwater streams in holes and tunnels in stagnant glacial ice; well to poorly sorted; thin to thick bedded, locally crossbedded; surface is characterized by discontinuous, bifurcated, steep-sided ridges (kames) that are often associated with small, steep-sided hills (kames) and flat-topped ridges (terrace hills)
  - Qd8** KAME-SKEWER DEPOSITS OF PRE-ELMENDORF ADVANCES (NAPTOWNE GLACIATION)—Complex mixtures of sandy alluvium and heterogeneous till deposited by debris-charged meltwater streams in holes and tunnels in stagnant glacial ice; well to poorly sorted; thin to thick bedded, locally crossbedded; surface is characterized by discontinuous, bifurcated, steep-sided ridges (kames) that are often associated with small, steep-sided hills (kames)
- Paludal Deposits**
  - Qp** UNDIFFERENTIATED SWAMP DEPOSITS—Elongate to blanket deposits of fine, organic silt, and organic material accumulated as local basins, in former stream channels, and downflow from springs and seeps; saturated and locally frozen, locally so rich, completely bedded; surface smooth
- Man-made Deposits**
  - Qh** ARTIFICIAL FILL—Pebble-cobble gravel with trace to some sand and silt forming bases for major roads, airfields, and construction pads and piled in active or former gravel pits and open-pit mines; well to poorly sorted; surface smooth to irregular

BEDROCK

- Bedded Rocks**
  - Tk** TYONEK FORMATION (Miocene)—Fluvial carbonaceous sandstone, siltstone, shale, and claystone (Magson and others, 1976; Clardy, 1984)
  - Tar** ARKOSE RIDGE FORMATION (Paleocene and Eocene)—Fluvial feldspathic and biotite sandstone, conglomerate, siltstone, and shale, locally containing abundant plant fossils, contains interbedded basal flows in lower part of section; cobbles and pebbles are polymictic but rich in granitic lithologies in lower part of unit (Magson and others, 1976; Clardy, 1984) and dominated by polymictic lithologies in upper part of section, which may correlate with Washonee Formation (Winkler, 1992); pervasively and intensely sheared close to lower contact with underlying unit Tms, forming massive, fine-grained, chloritic rock with rare, highly sheared granitic clasts on Government Peak
- Intrusive Rocks**
  - Kum** SERPENTINIZED ULTRAMAFIC ROCKS (Late Cretaceous)—Intensely sheared medium greenish-gray to black serpentinite-chlorite serpentinite (Cajley and others, 1978; Cajley and Evans, 1979; Silberman and others, 1978)
  - Jga** GABBRO (Middle Jurassic?)—Very coarse crystalline hornblende gabbro intruding pelitic schist on northeast ridge of Government Peak
  - Jqd** QUARTZ DIORITE (Middle Jurassic?)—Medium- to coarse-crystalline hornblende (±biotite) quartz diorite (Winkler, 1992)
- Metamorphic Rocks**
  - Jma** AMPHIBOLITE (Early and Middle Jurassic?)—Structurally complex amphibolite with lesser foliated quartz diorite and biotite-quartz-feldspar gabbro (Winkler, 1992)
  - Jps** PELTIC SCHIST (Jurassic?)—Medium-grained quartz-muscovite-illite-chlorite (±garnet-biotite ±serpentine-actinolite) greenish-gray pelitic schist, probably retrogressed from amphibolite-diorite rocks, numerous quartz veins and stringers (Ray, 1954; Cajley and Smith, 1975; Cajley and others, 1978; Madden and others, 1987)

CORRELATION OF MAP UNITS



BEDDED ROCKS

- Tik**
- Tar**

INTRUSIVE ROCKS

- Kum**
- Jga**
- Jqd**

METAMORPHIC ROCKS

- Jma**
- Jps**

EXPLANATION OF MAP SYMBOLS

- Strike and dip of beds
- Strike and dip of foliation
- - - Contact, dashed where approximate
- U Fault, location and displacement sense verified by field inspection or documented in literature. Dashed where approximate. U on relatively upthrown block, D on relatively downthrown block.
- Photolineaments
- Scarp, herb on lower side
- Ridge, may be fault wedge or glacially scoured ridge of resistant bedrock
- Trough, may be ice-marginal channel at lower elevations
- Photolineament with no topographic expression evident in aerial photographs. Generally visible as a color or density contrast in vegetation.
- Sackung failure in bedrock. Arrow indicates general direction of downslope movement.
- Lake
- ? Location queried where questionable or uncertain

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GEOLOGIC MAP OF THE ANCHORAGE C-8 NE QUADRANGLE, ALASKA

By  
Richard D. Reger, Rodney A. Combellick, and DeAnne S. Pinney  
1994

This DCGS Report of Investigations is a final report of scientific research. It has received technical review and may be cited as an agency publication.

Based on field investigations in 1980, 1981, 1982, 1983, 1984, and 1994 supplemented by interpretation of 1:12,000-, 1:18,000-, and 1:24,000-scale color aerial photographs taken in 1973, 1981, 1982, and 1986 and 1:63,500-scale false-color infrared aerial photographs taken in 1984 and 1993. Field assistance provided by Cheri Daulton, Kristin Kline, and Olin Chase. Reviewed by Jim Clough and Jeff Kline.

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF MAP (DIAGONAL) IS APPROXIMATE

SCALE 1:250,000

DIAGONAL LOCATION

Department of Natural Resources  
Division of Geological and Geophysical Surveys  
Geologic Data Modeling System

Alaska Division of Geological and Geophysical Surveys logo